

## Contents Volume 99, 1992

### Special Issue "Geochemistry of Metalliferous Black Shales", by P.A. Meyers, L.M. Pratt and B. Nagy (Guest-Editors)

#### *Introduction to geochemistry of metalliferous black shales*

- P.A. Meyers (Ann Arbor, Mich., U.S.A.), L.M. Pratt (Bloomington, Ind., U.S.A.) and B. Nagy  
(Tucson, Ariz., U.S.A.) ..... vii

#### Carbon-sulfur-iron systematics of the uppermost deep-water sediments of the Black Sea

- T.W. Lyons and R.A. Berner (New Haven, Conn., U.S.A.) ..... 1

#### Gold deposition by sulfidation of ferrous Fe in the lacustrine sediments of the Pueblo Viejo district (Dominican

Republic): The effect of Fe-C-S diagenesis on later hydrothermal mineralization in a maar-diatreme complex  
R.M. Kettler (Lincoln, Nebr., U.S.A.), R.O. Rye (Denver, Colo., U.S.A.), S.E. Kesler, P.A. Meyers (Ann Arbor,

Mich., U.S.A.), J. Polanco and N. Russell (Santo Domingo, Dominican Republic) ..... 29

#### Role of organics and methane in sulfide ore formation, exemplified by Kupferschiefer Cu-Ag deposits, Poland

E.C. Jowett (Waterloo, Ont., Canada) ..... 51

#### Relationship between inferred redox potential of the depositional environment and geochemistry of the Upper Pennsylvanian (Missourian) Stark Shale Member of the Dennis Limestone, Wabaunsee County, Kansas, U.S.A.

J.R. Hatch and J.S. Leventhal (Denver, Colo., U.S.A.) ..... 65

#### Time-dependent changes for Midcontinent Pennsylvanian black shales, U.S.A.

R.B. Schultz (Cincinnati, Ohio, U.S.A.) and R.M. Coveney, Jr. (Kansas City, Mo., U.S.A.) ..... 83

#### Gold and platinum in shales with evidence against extraterrestrial sources of metals

R.M. Coveney, Jr., J.B. Murowchick (Kansas City, Mo., U.S.A.), R.I. Grauch (Denver, Colo., U.S.A.),  
M.D. Glascock and J.R. Denison (Columbia, Mo., U.S.A.) ..... 101

#### Metal enrichment in bitumens from Carboniferous-hosted ore deposits of the British Isles

J. Parnell (Belfast, U.K.) ..... 115

#### Metal-organic relationships from the Irish Carboniferous

B. Monson and J. Parnell (Belfast, U.K.) ..... 125

#### Origin of stratiform sediment-hosted manganese carbonate ore deposits: Examples from Molango, Mexico, and TaoJiang, China

P.M. Okita and W.C. Shanks III (Reston, Va., U.S.A.) ..... 139

#### Formation of Phanerozoic stratiform sediment-hosted zinc-lead deposits: Evidence for the critical role of ocean anoxia

R.W.J. Turner (Vancouver, B.C., Canada) ..... 165

#### Organic matter and copper mineralization at White Pine, Michigan, U.S.A.

J.L. Mauk (Ann Arbor, Mich., U.S.A.) and G.B. Hieshima (Bloomington, Ind., U.S.A.) ..... 189

### Research Papers

#### Helium and carbon isotope systematics in crustal fluids from the Eifel, the Rhine Graben and Black Forest, F.R.G.

E. Griesshaber, R.K. O'Nions and E.R. Oxburgh (Cambridge, U.K.) ..... 213

#### Mineralogy and geochemistry of some "so-called" paleosols from Mt. Vulture volcano (southern Italy)

S. Fiore (Potenza, Italy), F. Huertas and J. Linares (Granada, Spain) ..... 237

#### REE distribution in the clay fraction of pelites from the southern Apennines, Italy

A. Caggianelli, S. Fiore, G. Mongelli and A. Salvemini (Potenza, Italy) ..... 253

#### Heavy-metal geochemistry of surface sediments from the southern Black Sea shelf and upper slope

F. Yücesoy and M. Ergin (Içel, Turkey) ..... 265

**Manganese-rich rock varnish does occur in Antarctica**

R.I. Dorn (Tempe, Ariz., U.S.A.), D.H. Krinsley (Tempe, Ariz., and Eugene, Oreg., U.S.A.), T. Liu (Tempe, Ariz., U.S.A.), S. Anderson (Spearfish, S.D., U.S.A.), J. Clark (Tempe, Ariz., U.S.A.), T.A. Cahill and T.E. Gill (Davis, Calif., U.S.A.) ..... 289

*Contents Volume 99, 1992* ..... 299